THE

Hindu Message

A Weekly Review of Indian and World-Problems
from the Hindu Standpoint.

Medical Supplement

‘ चिकित्सितात्पुण्यतमं न किञ्चिदपि शुश्रुमः’ । ‘ बिभेत्यल्पश्रुताद्वेदो मामयं प्रहरिष्यति ’

VOL. I. No 4.] Registered No. M. 1304. THURSDAY DECEMBER 22, 1921 [PRICE: 1 ANNA Annual Subscription Rs. 3.

NOTES AND COMMENTS.

THE BACILLUS THEORY.

The purity of the soil is as much desired as the purity of the seed. If the soil is diseased and the seed is pure the harvest will be poor or nil and the labour will be waste. If on the other hand the seed is within and the soil is pure there also the labour will be a waste. We shall have therefore to keep both the soil and the seed pure and healthy if we were to reap a good harvest.

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To keep the body pure and hale is the highest aim of man. It is the only desirable condition of life, which the human system strives to enjoy in normal conditions. Says Charaka धर्मार्थकाममोक्षाणामारोग्यं मूलमुक्तम् । रोगास्तस्यापहर्तारः ।

Topreserve this condition of life is the main function and aim of the medical science. This will be clear from a perusal of the Introductory portion of the First Chapter of Charaka Samhita and also of the Susruta Sambita. The latter says:—

भगवन्! शारीरमानसाऽगन्तु व्याधिभिर्विविधवेदनाभिघातोपद्रुनान् सनाथानप्यनाथवद्विचेष्टमानान् विक्रोशतश्च मानवानभिसमीक्ष्य मनसिनः पीडा भवति। तेषां सुखैषिणां रोगोपशमार्थं आत्मनश्च प्राणयात्रार्थं प्रजाहितहेतोः आयुर्वेदं श्रोतुमिच्छामः इहोपदिश्यमानं । अत्रायत्तमैहिकमामुष्मिकं च श्रेयः ॥

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Thus it will be seen that the sole aim of a man is his endeavour to protect himself (the system) from the ravages of those desparadoes called diseases. In the same way as we would endeavour to protect our fields from the ravages of insect pests.

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How to preserve that healthy condition? One of the many and indispensable ways of preserving that condition is by warding off the attack of diseases that pray upon the organisms.

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According to the Ayurvedic system the derangement of the Doshas provide the necessary food for the disease to grow upon which in turn get themselves deranged by irregular diet, exercises etc. or in the words of their technique : मिथ्याहार विहार etc.

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According to the West a particular bacilli is introduced into the system which produces a particular disease. This onset of disease paralyses the whole organism upsetting thereby the equilibrium of health in the body.

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In either case the result is the same. Namely in the field called the body we reap a very bad harvest (disease)instead of a good one (health)—by sowing rotten seeds (bacilli or according to Ayurveda, irregular and improper diet, exercise etc. (मिथ्याहारविहार) which paralyses the whole organism and renders our labour a waste by disorganising the natural functional duties of the respective controlling agents—the three humours, Vata, Pitta and Kapha.

Ayurveda holds that those three humours are the direct causes which, alone when deranged cause the onset of disease in the body, while all other extraneous influences do but accelarate that onset of disease This former they call the सन्निकृष्टनिदानम् while the latter is only विप्रकृष्टं निदानम् । This *Viprakrishta Nidana.* or what may be called the indirect or extraneous causes acts on the three doshas or the controlling agents and thus only help them in causing a disease in the system. They therefore survive only so long as their appearance is necessary for the onset of a disease and as soon as that appears in the body or a little later, they disappear. Hence it is that Ayurveda insists upon the treatment of the direct causes or the Doshas rather than the original or extraneous influences or indirect causes which are only transitory.

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The influence of a bacilli in causing a disease in the organism is according to us, only an indirect cause as it is introduced into the system from

without. This bacilli therefore acts on the doshas and endangers their stable equilibrium and causes a particular disease to set in, by its influence. When the disease has once set in, then, the treatment for the particular bacilli will be of no use as the respective functional agents would have been disorganised altogether. When the whole system has once thus been disorganised, however successful may be our treatment for the bacilli, no effective cure will be noticed and the patient will be suffering from one or other of the various diseases arising out of such a derangement of these functional agents. That is why we find that the bacillus theory has failed to be satisfactory in very many cases, and that even after the successful treatment of a disease caused by a particular bacilli, the patient is found to be suffering still from a different disease arising out of the introduction of a different bacilli into the system. Thus we find no end for the change of treatment very often nor is there any end to the sufferings of the patient even.

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According to Ayurveda these bacilli live as an outsider, only so long as the particular derangement, suited to its survival, in the organism, exists. When that derangement is rectified, and the humours or the controlling agents are put in their normal position the bacilli find the place too hot for its existence and die away or become incapacitated to do any harm to the system and are gradually expelled therefrom. Hence they say, in the words of that famous commentator on Madhava Nidana, Vijayarakshita, वर्तितैलवत् निमित्तकारणम्। which means "so long as there is oil in the lamp, the wick burns." When the oil is exhausted, the wick becomes dry and the light in due course becomes extinguished.

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If on the other hand, as the Allopaths hold, that the bacilli alone causes the disease, and are therefore the direct cause for the onset of the same, the resultant effect, when treated for the particular bacilli, must be universal and infallible which is not the case in experience, and the theory completely fails to satisfy the necessary conditions for a generalisation.

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The sero-therapy theory, which is now generally admitted to be the most successful achievement of modern science, by those of our allopathic friends in this country, has failed to satisfy many an eminent men of that science in the West. They have now begun to lose confidence in them, altogether, so much so that they have expressed in unmistakable terms its utter inapplicability in the light of modern experience, to justify its hypothetic basis as a theory.

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If it is to be infalliable as a generalised theory it must produce a common result, and unfailing, at all times and under given conditions. Though it may be found to produce the expected result in certain cases, it is generally admitted to have failed, in very many similar cases, to produce any tangible result at all.

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Recent investigations have shown that there are certain bacillus organisms in the body which are beyond even the highly sensitive and powerful magnifying glasses available. So much so up to a certain stage our microscopes fail to help us in any way; and our knowledge of this bacillus theory therefore becomes imperfect as it will be useful only after a particular stage. How then are we to know of the onset of the disease in the system before such time as the particular bacilli comes within the scope of our instruments—the Microscope etc.

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Hence Ayurveda holds that the bacilli is but the effect of the derangement of the humours which are the causes. To be successful therefore the cause alone is to be removed and not the effect which will but be an imperfect operation. With the removal of the cause the effect also becomes removed. It will not therefore be enough to keep the seed alone clean and pure when the field is diseased. The field is the most important factor than the seed and that alone therefore has to be preserved clean and pure. The West aims at keeping the seed pure and clean while Ayurveda recognises that the field alone is to be preserved pure and clean. Hence Susruta said that the aims of the Ayurveda are व्याध्युपसृष्टानां व्याधिपरिमोक्षः स्वस्थस्य रक्षणं च Treatment of the diseases and the preservation of health. The latter the West has yet to recognise and which the East had conclusively realised as one of the functions of medical science ever since its inception.

✓ The Active Principle in Medicinal Drugs—VIII.

BY ELIYURKAR. G. SUBRAHMANYA SARMA.

Students of Chemistry may well know what an alkaloid is, what its composition is and what are its characteristics. These alkaloids, it may be pointed out, are but compounds found in substances of the vegetable kingdom. Says Mr. Remsen in his Organic Chemistry thus:—"The alkaloids are compounds occurring in plants frequently constituting those parts of the plants which are more active when taken into the animal body. They are hence sometimes called the Active principle of the Plants. Many of these substances are used in medicine. As regards their chemical character, they are basic i the sense that ammonia is basic. They contain Nitrogen and form salts just as ammonia does *i. e.* by direct addition to the acids."

These facts lead us to conclude that alkaloids are compound substances, possessing certain latent forces, as one of the various characteristic properties, which when administered into the human organism produce certain result which are being evidenced in every day practice. It is therefore evident that an alkaloid or the active principle of a drug is not an element or merely a property but a matter—a compound matter, possessing certain latent energy which gives it the character of being an active agent. These active agents are commonly called the active principle in order to distinguish them from the various other compounds, that form parties to the composition of the drug, whose characteristics are either passive or neutral in their actions.

These compounds it may be interesting to note are found to occur only in plants and therefore form members of the same group known as the compounds of carbon and can be decomposed by further analysis into their elementary substances rendering them thereby impossible of being further analysed and divided.

We wish to emphasise here to our readers

to bear in mind the properties of the active principle explained above. For they will be found to have great bearing on the principles of the Rasa, Virya and Vipaka of the eastern system. This will later on be clearly explained in the concluding part of this investigation. They will help us in identifying them with the true nature of the eastern principles mentioned above. They will help us in making them intelligible to the students of western medicine. They will help us in making them understand that the Rasa, Virya, Vipaka principles of the East are not quite different from the much praised active principle of the West, but are identical with the latter.

The true nature of the compounds of carbon and their properties and compositions are matters well known to students of organic chemistry or the chemistry of the Hydrocarbons and their derivatives. As the name itself suggests they are but compounds of Hydrogen and Carbon generally with but few exceptions. Though the compounds of carbon are, for the most part, said to be prepared in a laboratory yet it is usually started, in preparing these compounds with a few fundamental compounds by natural processes such as sugar, starch, cellulose and certain other alkaloids which occur ready formed in plants.

Thus these hydrocarbons, it may be found, are products of nature possessing certain properties similar to those of its composition in definite proportions. These properties may also be dissimilar to its component parts as a result of its combination by chemical process in nature. The same thing was also said of the principles of the Rasa, Virya and Vipaka of the eastern system already referred to. It is this similarity in their character that has enabled us to try to identify the two principles with each other and has afforded us the working basis for our identification.

These compounds of carbons when ultimately reduced to their elementary components land us on the same plane as that of the Rasa, Virya, Vipaka compounds do viz. the elements of creation which have already been alluded to in these pages.

We can try to illustrate this by some concrete instances. A reference to the foregoing pages will convince our readers as to the truth of the above statements. We shall now examine and verify what we have said above.

The readers are already familiar with the compounds of Aconiti Radix commonly called the Aconite. What are the elementary substances of its composition, we shall presently see:—

Aconite (Aconite Radix)		formula
Aconitive	(A P)	$C_{33} H_{45} N O_{12}$
Benzoconine		$C_{24} H_{35} (C_6 H_5 C O)$
Aconine		$C_{24} H_{39} N O_{10}$

So much so, all the three compounds Aconitine, Aconine, and Benzoconine, which favour some of the component parts of the Drug Aconite, are composed of the elementary substances Carbon, Hydrogen, Nitrogen and Oxygen in varying degrees. There is another compound, the aconitic acid, which forms an important ingredient in the formation of the Drug. Aconite is found also to be composed of the very same substances of nature, Carbon, Hydrogen and Oxygen in varying but definite proportions viz. $[C_6 H_6 O_6 (-C_3 H_3 (C O_2 H_3))]$.

Next we shall take another substance *Jahorandi Folia* whose active principle is a compound called *Rilocarpine* the composition of which is found to be $C_{11} H_{16} N_2 O_2$.

Similarly the active principle of *Columba* is said to be a neutral body called *Columbin* whose composition is stated to contain $C_{24} H_{17} O_7$.

Atropine another active principle similar in properties and actions to *jahorine* of the *Jaborandi Folia* which is said to be composed of the same elementary substances in certain proportions viz. $C_{17} H_{23} N O_3$.

Thus it may be seen that the compositions of all compounds, whether an acid or an alkaloid, is made up of the primary elements Carbon, Hydrogen and Oxygen generally and Nitrogen also in certain other cases though in varying but definite proportions.

We may supplement the above with some more examples of various other substances showing thereby the uniformity of these in their compositions.

Quinine	From Peruniam Bark of the Cinchona Varieties	$C_{20} H_{24} N_2 O_2 + 3 H_2 O$
Cinchonine	occur with Quinine in the above	$C_{19} H_{22} N_2 O.$
Cinchonidine		$C_{19} H_{22} N_2 O.$
Cocaine	From Cocoa leaves	$C_{17} H_{21} N O_4$
Nicotine	„ Tobacco leaves	$C_{10} H_{14} N_2$

Science of Keeping Fit.

" SWEATING IT OUT. "

What is the truth about sweating? For there is no bodily function about which so many views appear to be held by the average man.

We are told, for example, that to sweat easily is a sign of weakness, or that sweating is weakening of itself. On the other hand, and with equal confidence, people assure us that they "sweated out" some infection or fever and were thereby cured.

Our knowledge of the subject is not as complete as we might wish. Yet it seems more or less evident that the "sweating stages" of most diseases are also the stages of betterment. Fever as a rule disappears when sweating is established.

It is easy enough to say that the evaporation of water from the body is the cause of the fall in temperature. Yet, in fact, the temperature falls when the patient is snugly wrapped up in blankets in such a way that evaporation cannot take place.

Consequently it is sufficiently evident that it is not the fact of the presence of the sweat which has cooled the fever heat. True, the sweat may have carried away a poison out of the system. But in that case we are dealing with a means of getting rid of a cause of fever, not with an agent counteracting the fever, itself.

This last view, "sweat it out" view, has long been held by the public. But doctors have not adhered to it. Excessive sweating in fevers was supposed to weaken the heart and was therefore avoided. It is only just recently that medical opinion has swung back again. Doctors are now, again, turning to the use of sweating.

CAUSE AND EFFECT.

It may be that we do sweat out poisons. On the other hand, it is possible that here, again, we are explaining one effect by another. It may be that the passing of the fever and the appearance of sweating are both results of a cause the nature of which we do not understand.

We must remember that fever and dryness of the skin begin together as a rule. They end together. The patient with ague is dry and hot while the attack lasts. Then his fever begins to pass and he becomes bathed in perspiration—the "sweating stage" of malaria.

The consumptive shows a picture of the same sort. His temperature rises and he is "dry." It falls towards morning and he is bathed in sweat. Yet he does not get rid of his disease. The same thing is liable to happen next night.

In this case the sweating merely shows that for the moment improvement has occurred. It is a symptom of betterment, that and no more.

The man who sweats too easily is, as a rule, not a very fit man. He is often subject to "rheumatism"; he is usually nervous and excitable. In short, he is what is called a "poisoned" individual. Slight exertion or excitement whips up his irritable nervous system to the point of activity usually associated with great exertion or excitement or with the passing of fever.

Such a view of sweating would suggest that it is to be regarded as a sign than as a benefit. We are not "sweating out" a fever; rather our measures, designed to promote sweating, really only enable the body to overcome some poison. In other words, it is not the sweating which matters but the poison.

EVIDENCE OF CURE.

Thus, the sweating after pneumonia indicates a cure, because once the body has overcome to the pneumonia poison the trouble is over and done with. The sweating after malaria or ague indicates cure till the next attack, because the poison of malaria is thrown out into the blood only at intervals depending on the activity of the malaria parasite. On the other hand, the sweating of consumption merely shows that rest and quiet and refreshment in sleep have for the moment brought down the amount of poison and also increased the patient's powers of resistance. This benefit is likely to be lost next day. Finally, the man who sweats easily is always slightly poisoned; any little increase of his energy whether by excitement or activity causes him to sweat.

Middle age is chiefly concerned with this last class of cases, for middle age is the period of slight poisoning, especially with the body's own waste products. If a middle-aged man begins to sweat too easily he may reasonably accept the sign as a warning. It is time to devote more care to health, to exercise, to diet. As he improves his health the tendency to sweating will grow less. He will have got rid of the offending poison.

This however is no argument against the practice of "sweating out" a cold. That practice, as has been suggested, is valuable, not because of the sweating, but because of the fact that it raises the powers of resistance. The patient who feels shivery gets warm again. He has a hot drink, hot blankets, a warmed room. He is thus placed in the best possible position for fighting the enemy. His own blood does the rest. The cold is overcome. His sweat glands, put out of action temporarily by the poison, come into play again.

Sweating, in fact, is a natural process, the object of which is probably temperature regulation. This process is under the control of the nervous system. The poisons of disease and the poisons produced by the body itself act on the nervous system and so disorganize it. In consequence sweating is disorganized also. This may help to increase a fever. But it is not the cause of the fever. The cause is infection, poison. We must look behind the symptoms, in fact, and see the origin of it.

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Printed and Published by T. K. Balasubrahmanya Aiyar, B. A. at the Sri Vani Vilas Press, Srirangam